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ABSTRACT

A developmental research activity was undertaken to create and field test a systematic process designed to assist vocational educators to form linkages with business and industry. The literature was synthesized to ascertain what has been learned about the linkage process and coordination theory and has served as a basis for writing a manual for practitioners. A process of field reading of the document produced was used to determine its suitability for the intended purpose. The major headings/elements in the model included (1) prelinkage activities, (2) methods of establishing linkage arrangements, (3) procedures for developing linkage plans, (4) procedures for implementing linkage plans, (5) the evaluation of linkage activities, and (6) recycling the linkage process. (YLB)

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**A Model for Linking
Vocational Education and Industry**

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In the area of social services, the search for effective implementation has moved recent policies beyond interventions by single agencies to an emphasis on interagency relationships. The concern for an effective and coordinated delivery of service, for instance, is a recurrent theme in the literature. A consensus has also developed that services provided by agencies have been inadequate because of fragmented, institutionally unilateral approaches to youth education, training, socialization, and transition services. For many other policymakers, researchers, and program administrators, collaborative agreements between agencies, organizations, and institutions offer the only probable solution to the problem of increasing service needs.

Considerable encouragement also exists in the educational literature for collaboration between/among institutions, organizations, and agencies in terms of joint problem solving, interorganizational resource sharing, etc. In fact, the literature identifies research, models, and state-of-the-art studies on linkages and the interfacing of education with business, industry, labor, and government as an area needing priority attention (Warmbrod, *et al.*, 1981). The point of convergence of most writings on interorganizational arrangements is on the principles that 1) national problem solving requires community-level participation; 2) community participation requires effective processes to create shared understanding, shared responsibility, shared resources, and shared benefits; and 3) the participants to these processes should include a wide range of community leaders, employers, workers, educators, and government officials (Gold, 1981).

Purpose

The purpose of this developmental research activity was to develop and field test a systematic process designed to assist vocational educators to

form linkages with business/industry. The process, which was based on an extensive review of the literature and relevant theory, is described in a manual for practitioners. The approach taken is to tell "what it is, and how to do it."

Specific Objectives

The specific objective was to develop a process that could be adopted or adapted by practitioners to develop collaborative arrangements between business or industry. This involved identifying and describing a process by which coordination of activities between vocational education and industry could be accomplished; obtaining field readings of the document produced, revising the document, and implementing the model.

Review of Literature

Linkage in its simplest form could be any activity involving two or more agencies (organizations) that is conducted with the intention of contributing to the achievement of each agency's respective goals. Thus, linkage can be thought of as an exchange from which those involved expect to benefit (Levine and White, 1960).

A more complex definition offered by Banathy and Duwe (1978) is that "linkage is a negotiated, authoritative arrangement between organizations whose internal components allow for a mutual coordination or exchange of resources of activities' that is "designed for the purpose of achieving each organization's, as well as mutually defined, goals and objectives." This definition makes more explicit the idea that linkage is a conscious process that results from decisions to exchange activities. It is thus evident that some level of planning must be involved in any such exchange. Depending on the complexity of the exchange, the "plan" may be written or oral.

Combining the above definitions, it may be seen that linkage should result in both meeting goals of the respective agencies as well as the mutually planned goal(s). For example, a linkage between vocational education and industry could have as its goal the awareness on the part of youth of the occupations within industry. A goal for this activity on the part of vocational educators could be to provide vocational guidance for students and thus more relevant education. The industry, on the other hand, may have as its goal the attraction of young workers or public relations for the industry. Thus, while there is a mutual goal for conducting the activity, there are also goals that are specific to the respective agencies. This exchange satisfies the goal established for the linkage, as well as the rather immediate need of the school personnel to provide a career development activity for selected students and long-range goals of the industry to attract workers and improve its image in the community. A linkage activity, while having a specified goal for the activity, need not satisfy the same need for the involved organizations. In fact, it is unlikely that organizations will share many mutual goals for such an exchange.

The types of linkage can be categorized as those that are mandated and those that are voluntary (Esterline, 1976). Mandated linkages can be further divided into those that are hierarchical (vertical), i.e., have a particular chain of command which is designed to coerce agencies into linkage, and horizontal, those in which the agencies have equal status but are required to link by their respective legislation. However, both are subject to audit. JTPA and vocational education fall into the horizontal categorization. Since the nature of this type of linkage is usually the result of a plan, it is sometimes considered to be "managed" rather than mandated.

The second type, voluntary linkage, is characterized by the absence of a prescribed system of management rules. Some would consider this to be "unmanaged" (Esterline, 1976). However, plans for activities will result in linkage by mutual adjustment, and the resulting consensus would avoid the haphazard state suggested by the term "unmanaged linkage." Business/industry linkage with vocational education is voluntary. No legislation exists, at the present, that requires these organizations to conduct any activities that involve the other. Yet, linkage activities can be observed that enable these organizations to meet their respective goals.

Linkage has the greatest probability of success when the environment is favorable to both organizations. Starr, et al. (1980) list what they found to be the basic necessity for establishing interorganizational relations that are satisfactory to the respective organizations. These include: a) basis for exchange; b) mutual benefit; c) awareness; d) mutual respect, confidence and trust; e) access; f) communication; g) similarity of attributes, goals and values; h) opportunity; and i) incentive. The linkage model was developed such that following the suggested procedures would capitalize on the basic necessity that exists and develop or enhance those that are weak or nonexistent.

Technique

The technique employed was to synthesize the literature to ascertain what has been learned about the linkage process and coordination theory. The literature, thus synthesized, served as a basis for writing the document. A process of field reading was employed to determine the suitability of the document for the intended purpose.

Results

The model that resulted from the process described under "Specific Objectives" is written in a format that is easy to comprehend and provides a

logical procedure to follow. Major headings in the model include: a) pre-linkage activities, b) methods of establishing linkage arrangements, c) procedures for developing linkage plans, d) procedures for implementing linkage plans, e) the evaluation of linkage activities, and f) recycling the linkage process. These elements of the model are discussed in turn.

Conducting Prelinkage Activities

The purpose of conducting prelinkage activities is to establish the need for linking and commitment to considering the possibility of conducting linkage activities. Thus, in the prelinkage step, the actors need not have a commitment to conducting linkage. Rather, an attitude of "let's talk about it" is all that is required. This allows for the actors to enter the process without committing themselves to conducting any activities which are coordinated with the other agency. The outcome of this step in the model is a decision whether to establish a linkage or not.

It is obvious that, before the linkage is even considered, an incentive to form a linkage must be present before prelinkage activities will begin. This incentive may be a person in one agency who sees the possibility of sharing resources with another agency in order to get a task or set of tasks done more efficiently, i.e., voluntary linkage, or legislation that requires that linkages be formed (mandatory linkage). (The model described here does not presuppose that there is a mandate for linkage.) Regardless of the source of incentive, there are several subtasks that are likely to be necessary to arrive at a commitment on the part of both agencies to form a linkage. These include deciding who to involve, making the initial contacts, and determining the context of the proposed linkage.

To be effective, the actors who should be involved in the planning of linkage activities are those who will be directly involved in the activity and

those who can make decisions and make commitments of the resources to be exchanged. In addition, the linking agencies may wish to involve a linkage facilitator who is not a member of either agency's staff. As the title suggests, this person should facilitate the development and management of the linkage activities. Thus, a person who has skills in analyzing organizations, providing assistance in designing linkage by organizing a structure within which linkage can be designed, and facilitating the implementation of the linkage is needed in this role.

The appointment of a linkage coordinator from each agency to provide oversight of the agency's responsibility for the conduct of the linkage and for accomplishing the linkage activities will facilitate the development of linkage. The appointment of a coordinator will also place the responsibility for making day-to-day decisions involved in carrying out the linkage plan and provide an identified person for the other agency to contact.

Initial contacts should create the opportunity for the beginning of discussions about linkage and developing the incentives to make the effort required. The outcome should be administrative approval to investigate the feasibility of forming the proposed linkage. In order to accomplish this, it is necessary for the person making the initial contact to be knowledgeable of both agencies. It is also essential that the "right" individuals be contacted. In many agencies, failure to contact the right people will result in sudden death of the linkage effort.

Just as it is important for the person making the initial contacts to be knowledgeable of the involved agencies, it is also advisable for the individuals who are to be involved in the linkage activities to be equally as knowledgeable. This will increase the probability that the participant

will agree on what each agency's domain is. Areas in which the participants should be knowledgeable include the scope of operations and the philosophy with which each agency approaches what it does. If this information is provided to and digested by the participants before the initial meeting, this will allow the participants to be sensitive to the perceptions of individuals in the other agency and thus react less to points of philosophy with which they may disagree. The outcome of the initial meeting should be a decision whether to form the linkage.

Establishing Linkage Arrangements

The purpose of this step is to set the stage for coordination of specified activities of the involved agencies. Thus, it could technically be considered to be prelinkage. However, at the outset of this step, a commitment to plan at least one joint activity should be obtained from participating agencies. This distinguishes the step from prelinkage which only requires that a commitment to consider a linkage be given. The desired outcome of the current step is to select a set of activities and to establish the commitment to carry these activities through to completion. The process of accomplishing the step involves determining potential linkage activities, identifying the potential barriers and facilitators to the conduct of the identified barriers, and selecting the activities to be included in the linkage plan.

An expedient way to identify potential linkage activities is to ask each participant what his/her agency could do for the other agency. The participants from each agency can then be asked which of the items listed by the participants of the other agency they would feel comfortable having them do or help do. The list that results from this process can be augmented by asking the participants to list the activities the participants in the other agency could do for them. The list, thus augmented, provides the starting

point for selecting activities for linkage. The list should be delimited by eliminating those tasks that are not acceptable to participants from both agencies and purging the list of those tasks that would not be cost effective. The list, thus delimited, is ready for further evaluation.

One method to provide further evaluation is to identify the barriers, i.e., things that keep agencies from doing things cooperatively and facilitators, i.e., the things that assist in overcoming the barriers. When this is done, then the barriers and facilitators can be considered to determine the probability that the linkage activities can be successfully conducted.

The final list of activities to be included in the linkage plan should be those activities that are mutually agreed upon by the participants in the involved agencies. The nature of the activities selected will depend, to a large extent, upon the amount of trust that has been developed up to that point. If a high degree of trust has evolved, then activities that involve the integration of some agency functions result in a dependency of each agency on the other to meet their respective goals. However, if a low level of trust is developed, then the linkage activities may involve only an exchange of information or an administrative contract for services. The latter levels would not fit the concept of linkage very well. However, since trust must be developed before higher level linkage can occur, these levels represent a place to start.

Most writers agree that coordination is less likely to falter if a plan is developed. Thus, the next section is a brief description of how planning can be done.

Developing a Linkage Plan

A linkage plan is a set of linkage activities for which strategies for conduct are specified. The description of how to develop a plan for linkage offered here is much like the typical planning strategy offered by standard planning texts. The steps prescribed here for planning linkage are: 1) establish goals for linkage activities, 2) task the selected activities, 3) assign linkage tasks, and 4) set milestones and deadlines. A brief description of these steps follows.

There are three sets of goals for any set of linkage activities--those that each agency has for the conduct of the activities, and those that the combined group has. The former are usually unwritten or listed in each agency's separate work plans. These goals, however, should be discussed openly and no secret agendas harbored. The latter should be written and included in the linkage plan.

The breaking down of large tasks required to accomplish a linkage activity into manageable "chunks," often referred to as "tasking," is a useful way to clarify what is to be done. This procedure is well known by most vocational educators, thus it will not be described here. The result of the tasking, if appropriate levels of subtasks are written, should produce descriptions of units of work that are small enough to assign to an individual participant.

Assignment of the responsibility for doing the subtask required to conduct the linkage activity can often be accomplished by the acceptance of responsibility by the linkage participants. Some subtasks may not be accepted and thus have to be "assigned." In addition, some participants may accept too many subtasks, which may require that some be reassigned to the participants who have offered to do few or none of the subtasks.

The setting up of milestones and deadlines for reaching the milestones, an important aspect of any planning procedure, is especially important in planning for linkage. By having deadlines for the completion of specific tasks and regularly scheduled meetings to check on progress being made to meet the deadlines, the probability of completing the tasks in a timely manner is enhanced.

Implementing Linkage Plans

The completion of the linkage plan marks the end of one phase of the linkage process. Up to this point the objective has been to establish a linkage between the agencies. The next step is the implementation. This envision of purpose may result in lessening of effort because of the feeling that the work has been completed. Contrary to this feeling, the fact is that the work has just begun. Procedures that can be used to avoid stagnation while fostering positive working relationships, include: 1) developing communication channels, 2) conducting meetings with subgroups, 3) reporting progress, and 4) making midcourse corrections.

Successful linkage is dependent on adequate communication. Oral communication is, by far, the most productive, whether face to face or via telephone. Communication also should occur with relative frequency. In order to insure that communication occurs it is a good idea to set up regular meetings for all linkage participants.

In addition to the total groups having regular meetings, it will be necessary for those who are working on a particular task to monitor progress. It is desirable for members of these subgroups to form direct communication among all members regardless of "rank". The communication of these subgroups will most likely be enhanced if a record is kept of all subgroup meetings, i.e., minutes.

The provision for regular reporting of progress is important for the maintenance of momentum in the conduct of linkage activities. These reports will provide an informal method for the linkage participants to monitor the extent to which the plans that were developed are being followed. Thus meetings should be held frequently enough to provide formative evaluation and make the corrections in plans that become necessary as the activities progress.

The need for midcourse corrections is likely to be indicated as the result of regular reporting. Reports indicating that a midcourse correction is needed include those where individuals or groups report no progress as well as those reports that contain no substance. The action taken to get the task back on track should be done with a helpful attitude with concern being shown for the involved participants as well as the linkage activity. Actions taken may range from providing assistance in completing the activity to totally redesigning the procedures being used to conduct the activity.

Evaluating the Linkage

It may be observed that elements of formative evaluation have been interwoven into the discussion of the various components. Progress reports will provide much of the necessary information needed to determine how well the linkage is being conducted. Most of the data for evaluating the progress can be obtained routinely. A detailed description of how to conduct an evaluation is not included here. Evaluation of linkage follows the usual procedures for evaluation including developing an evaluation plan, collecting evaluation data, analyzing the data, and finally using the evaluation results.

The placement of evaluation in the model presented in Figure 1 would indicate that evaluation is conducted only after the implementation stage is complete. This, however is true only for evaluation which is done for the

purpose of asking how well the linkage was conducted, i.e. summative evaluation. Formative evaluation should be conducted throughout the conduct of linkage activities.

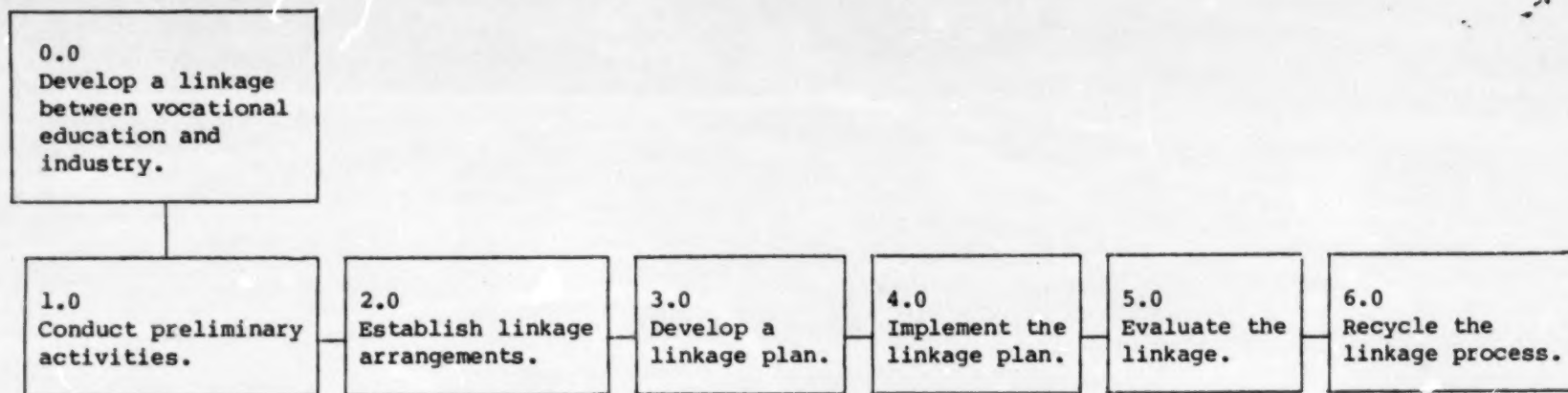
Recycling the Linkage Process

Activities included in the linkage plan will require different lengths of time to complete. A cycle can be as short as a month or as long as several years. Thus activities will be starting up and ending at different points in time. The second and following cycles of those activities that have been successful will have the benefit of the experience gained in the preceding cycle(s). Information gleaned from the formative and summative evaluation can be used in the conduct of the various activities.

There is a tendency to become less formal in the planning for and conduct of linkage activities in the second and following cycles. This tendency, for the most part, should be resisted. Following the same procedure involved in the first cycle including planning, implementation of plans, and monitoring progress will usually result in more satisfactory outcomes.

Conclusion

The field readings of the model by scholars and practitioners indicate that it is a viable process for establishing business/industry linkage with vocational education. An extensive field test of the model is planned. It is anticipated that a variety of agencies will be able to utilize the model. At the present, what has been reported here is a synthesis of the literature concerning linkage as well as coordination.



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Figure 1. Tasks Involved in the Linkage Process

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